

## ABSTRACT

[0062] An assay is provided for nucleic acids that can be post-synthetically labeled, wherein modified nucleoside triphosphates are used that are more efficiently and specifically incorporated during nucleic acid synthesis than labeled nucleoside triphosphates. In a preferred embodiment, nucleoside  $\alpha$ -thiotriphosphates are utilized. Maleimide or iodoacetamide conjugating moieties can be attached post-synthetically. The conjugating moieties may include a reporter group. Also disclosed are new methods for detecting single nucleotide polymorphism.